

Serial No. 09/741,843

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-94 (canceled)

95. (New) An isolated polynucleotide encoding a complementarity determining region (CDR) comprising the amino acids 24 to 40 of SEQ ID NO.: 2.
96. (New) An isolated polynucleotide encoding a complementarity-determining region (CDR) comprising the amino acids 56 to 62 of SEQ ID NO.: 2.
97. (New) An isolated polynucleotide encoding a complementarity-determining region (CDR) comprising the amino acid sequence 95 to 102 of SEQ ID NO.: 2.
98. (New) An isolated polynucleotide encoding a complementarity determining region (CDR) comprising the amino acids 31 to 35 of SEQ ID NO.: 4.
99. (New) An isolated polynucleotide encoding a complementarity-determining region (CDR) comprising the amino acids 50 to 66 of SEQ ID NO.: 4.
100. (New) An isolated polynucleotide encoding a complementarity-determining region (CDR) comprising the amino acid sequence 99 to 105 of SEQ ID NO.: 4.
101. (New) An isolated polynucleotide encoding a monoclonal antibody (mAb) or an antigen binding fragment thereof, wherein said mAb or fragment thereof comprises at least one complementarity determining region (CDR) selected from the group consisting of:
- complementarity determining region (CDR) comprising the amino acids 24 to 40 of SEQ ID NO.: 2;
 - complementarity-determining region (CDR) comprising the amino acids 56 to 62 of SEQ ID NO.: 2;
 - complementarity-determining region (CDR) comprising the amino acid sequence 95 to 102 of SEQ ID NO.: 2;

Serial No. 09/741,843

complementarity determining region (CDR) comprising the amino acids 31 to 35 of SEQ ID NO.: 4;

complementarity-determining region (CDR) comprising the amino acids 50 to 66 of SEQ ID NO.: 4; and

complementarity-determining region (CDR) comprising the amino acid sequence 99 to 105 of SEQ ID NO.: 4.

102. (New) An isolated polynucleotide encoding a monoclonal antibody (mAb) or an antigen binding fragment thereof, wherein said mAb or fragment thereof comprises:

a light variable region comprising at least one complementarity-determining region (CDR) selected from the group consisting of amino acids 24 to 40 of SEQ ID NO: 2, amino acids 56 to 62 of SEQ ID NO: 2 and amino acids 95 to 102 of SEQ ID NO: 2.

103. (New) An isolated polynucleotide encoding a monoclonal antibody (mAb) or an antigen binding fragment thereof, wherein said mAb or fragment thereof comprises:

a heavy chain variable region comprising at least one complementarity-determining regions (CDR) selected from the group consisting of amino acids 31 to 35 of SEQ ID NO: 4, amino acids 50 to 66 of SEQ ID NO: 4 and amino acids 99 to 105 of SEQ ID NO: 4.

104. (New) An isolated polynucleotide encoding a monoclonal antibody (mAb) or an antigen binding fragment thereof, wherein said mAb or fragment thereof comprises:

a light variable region comprising at least one complementarity-determining region (CDR) selected from the group consisting of amino acids 24 to 40 of SEQ ID NO: 2, amino acids 56 to 62 of SEQ ID NO: 2 and amino acids 95 to 102 of SEQ ID NO: 2; and further comprises:

a heavy chain variable region comprising at least one complementarity-determining regions (CDR) selected from the group consisting of amino acids 31 to 35 of SEQ ID NO: 4, amino acids 50 to 66 of SEQ ID NO: 4 and amino acids 99 to 105 of SEQ ID NO: 4.

105. (New) The isolated polynucleotide of claim 104, wherein said light and heavy chain variable regions further comprise framework regions (FRs) of a light and heavy chain variable regions of one or more human antibodies.

Serial No. 09/741,843

106. (New) The isolated polynucleotide of claim 105, wherein said FRs further comprise at least one amino acid substitution.
107. (New) The isolated polynucleotide of claim 106, wherein said substituted amino acid in said FRs is an amino acid identified as a potential CDR contact affecting the affinity and specificity of the encoded mAb to an antigen.
108. (New) The isolated polynucleotide of claim 107, wherein said substituted amino acid is the same amino acid as the corresponding amino acid from a mAb from which the CDRs are obtained.
109. (New) The isolated polynucleotide of claim 108, wherein said substituted amino acid is selected from the group consisting of amino acid position 4, 21, 22, 45, 77, 105, 112 and a combination thereof of the light chain variable region of SEQ ID NO. 2, and wherein said substituted amino acid is selected from the group consisting of amino acid position 27, 30, 48, 67, 68, 98 and a combination thereof of the heavy chain variable region of SEQ ID NO. 4.
110. (New) The isolated polynucleotide of claim 106,
wherein said FRs of the light chain variable region comprise at least one FR selected from the group consisting of amino acids 1-23 of SEQ ID NO:6, amino acids 41-55 of SEQ ID NO:6, amino acids 63-94 of SEQ ID NO:6 and amino acids 103-113 of SEQ ID NO:6; and
wherein said FRs of the heavy chain variable region comprise at least one FR selected from the group consisting of amino acids 1-30 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 36-49 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 67-98 of SEQ ID NO:8 or SEQ ID NO:9 and amino acids 106-116 of SEQ ID NO:8 or SEQ ID NO:9.
111. (New) An isolated polynucleotide encoding a monoclonal antibody (mAb) or an antigen binding fragment thereof comprising:
a light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprising at least one framework region (FR) selected from the group consisting of amino acids 1-23 of SEQ ID NO:6, amino acids 41-55 of SEQ ID NO:6, amino acids 63-94 of SEQ ID NO:6, and amino acids 103-113 of SEQ ID NO:6; and further comprising:

Serial No. 09/741,843

a heavy chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprising at least one framework region (FR) selected from the group consisting of amino acids 1-30 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 36-49 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 67-98 of SEQ ID NO:8 or SEQ ID NO:9 and amino acids 106-116 of SEQ ID NO:8 or SEQ ID NO:9.

112. (New) An isolated polynucleotide of claim 111,

wherein said light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprises FRs comprising amino acids 1-23 of SEQ ID NO:6, amino acids 41-55 of SEQ ID NO:6, amino acids 63-94 of SEQ ID NO:6, and amino acids 103-113 of SEQ ID NO:6; and

wherein said heavy chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprises framework regions (FRs) comprising amino acids 1-30 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 36-49 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 67-98 of SEQ ID NO:8 or SEQ ID NO:9 and amino acids 106-116 of SEQ ID NO:8 or SEQ ID NO:9.

113. (New) An isolated polynucleotide encoding a monoclonal antibody (mAb) or an antigen binding fragment thereof comprising:

a light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprising complementarity-determining regions (CDRs) comprising amino acids 24 to 40 of SEQ ID NO.: 2, amino acids 56 to 62 of SEQ ID NO.: 2 and amino acid sequence 95 to 102 of SEQ ID NO.: 2; and further comprising:

a heavy chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprising complementarity-determining regions (CDRs) comprising amino acids 31 to 35 of SEQ ID NO.: 4, amino acids 50 to 66 of SEQ ID NO.: 4 and the amino acid sequence 99 to 105 of SEQ ID NO.: 4.

114. (New) An isolated polynucleotide encoding a monoclonal antibody (mAb) or an antigen binding fragment thereof comprising:

a light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprising:

complementarity-determining regions (CDRs) comprising amino acids 24 to 40 of SEQ ID NO.: 2, amino acids 56 to 62 of SEQ ID NO.: 2 and the amino acid sequence 95 to

Serial No. 09/741,843

102 of SEQ ID NO.: 2., and further comprising:

framework regions (FRs) comprising amino acids 1-23 of SEQ ID NO:6, amino acids 41-55 of SEQ ID NO:6, amino acids 63-94 of SEQ ID NO:6 and amino acids 103-113 of SEQ ID NO:6; and further comprising:

a heavy chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof comprising:

complementarity-determining regions (CDRs) comprising amino acids 31 to 35 of SEQ ID NO.: 4, amino acids 50 to 66 of SEQ ID NO.: 4 and the amino acid sequence 99 to 105 of SEQ ID NO.: 4; and further comprising:

framework regions (FRs) comprising amino acids 1-30 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 36-49 of SEQ ID NO:8 or SEQ ID NO:9, amino acids 67-98 of SEQ ID NO:8 or SEQ ID NO:9 and amino acids 106-116 of SEQ ID NO:8 or SEQ ID NO:9.

115. (New) The isolated polynucleotide of claim 114, wherein said fragments are selected from the group consisting of $F(ab')_2$, Fab' , Fab , and Fv .

116. (New) The isolated polynucleotide of claim 114 encoding an amino acid sequence comprising SEQ ID NO:6 and SEQ ID NO:8 or 9.

117. (New) The isolated polynucleotide of claim 114 comprising the nucleic acid sequence of SEQ ID NO:5 and SEQ ID NO:7.

118. (New) The isolated polynucleotide of claim 113 encoding an amino acid sequence comprising SEQ ID NO:2 and SEQ ID NO:4.

119. (New) The isolated polynucleotide of claim 113 comprising the nucleic acid sequence of SEQ ID NO:1 and SEQ ID NO:3.

120. (New) The isolated polynucleotide of claim 104, wherein said monoclonal antibody or antigen binding fragment thereof binds to an epitope of CD22.

121. (New) The isolated polynucleotide of claim 120, wherein said epitope of CD22 is the same epitope which the murine LL2 monoclonal antibody binds.

Serial No. 09/741,843

122. (New) The isolated polynucleotide of claim 111, wherein said monoclonal antibody or antigen binding fragment thereof binds to an epitope of CD22.

123. (New) The isolated polynucleotide of claim 122, wherein said epitope of CD22 is the same epitope which the murine LL2 monoclonal antibody binds.

124. (New) The isolated polynucleotide of claim 104, wherein said monoclonal antibody further comprises light and heavy chain constant regions linked to the light and heavy chain variable regions.

125. (New) The isolated polynucleotide of claim 124, wherein said light and heavy chain constant regions are from one or more human antibodies.

126. (New) An expression vector comprising the polynucleotide of claim 104.

127. (New) A host cell comprising the polynucleotide of claim 104.

128. (New) A host cell of claim 127, wherein said cell is a mammalian cell.

129. (New) A host cell of claim 128, wherein said mammalian cell is a myeloma cell.

130. (New) An isolated polynucleotide encoding a light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 104.

131. (New) An isolated polynucleotide encoding a light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 113.

132. (New) The isolated polynucleotide of claim 131 encoding the amino acid sequence of SEQ ID NO:6.

133. (New) The isolated polynucleotide of claim 131 comprising the nucleic acid sequence of SEQ ID NO:5.

134. (New) The isolated polynucleotide of claim 131 encoding the amino acid sequence of

Serial No. 09/741,843

SEQ ID NO:2.

135. (New) The isolated polynucleotide of claim 131 comprising the nucleic acid sequence of SEQ ID NO:1.

136. (New) An expression vector comprising a polynucleotide encoding a light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 104.

137. (New) A host cell comprising a polynucleotide encoding a light chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 104.

138. (New) A host cell of claim 137, wherein said cell is a mammalian cell.

139. (New) A host cell of claim 138, wherein said mammalian cell is a myeloma cell.

140. (New) An isolated polynucleotide encoding a heavy chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 104.

141. (New) An isolated polynucleotide encoding a heavy chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 113.

142. (New) The isolated polynucleotide of claim 141 encoding the amino acid sequence of SEQ ID NO:8 or SEQ ID NO:9.

143. (New) The isolated polynucleotide of claim 141 comprising the nucleic acid sequence of SEQ ID NO:7.

144. (New) The isolated polynucleotide of claim 141 encoding the amino acid sequence of SEQ ID NO:4.

145. (New) The isolated polynucleotide of claim 141 comprising the nucleic acid sequence of SEQ ID NO:3.

146. (New) An expression vector comprising a polynucleotide encoding a heavy chain

Serial No. 09/741,843

variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 104.

147. (New) A host cell comprising a polynucleotide encoding a heavy chain variable region of a monoclonal antibody (mAb) or antigen binding fragment thereof of claim 104.

148. (New) A host cell of claim 147, wherein said cell is a mammalian cell.

149. (New) A host cell of claim 148, wherein said mammalian cell is a myeloma cell.